

Maya Settlements and Worldview: The Northern Peninsula of Yucatan
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The territory where Maya civilization arose and developed offers a sweep of ecological diversity in flora, fauna, habitats, topography, and resources. The environmental features of the Maya area shaped the cosmogonic beliefs of this indigenous group, which were transferred to their ideology and their religious thought. Maya culture and civilization were based on the cultivation of agricultural fields, especially maize. Corn and rainforest resources were their principal means of sustenance throughout the periods of their social and cultural development. Other resources, such as salt and seashore products, also played an important role in specific areas.

The Mayas, just as other groups in Mesoamerica, were keen skywatchers and this enabled them to establish correlations between the movement of the stars, particularly the Sun, Moon, and planets such as Venus, and different phases of the agricultural cycle. The apparent movement of the Sun on the horizon helped them fix important dates related to the preparation of cornfields, sowing, crop growth, and the harvest. In Maya codices we can find examples of this concern for recording and predicting the movements of the Sun, Moon, and Venus. This led to the formulation of the 260-day ritual calendar known as tzolkin and the 365-day solar calendar called haab. The first of these was composed of the sequential repetition of the numbers one to thirteen paired with one of twenty day names, and the other had eighteen months of twenty days each plus the final five days of the year, regarded as ill-fated. The meshing of these two calendars formed 18,980-day or 52-year cycles that today we call the Calendar Round.

The rainforest was the ecosystem exploited by the Mayas for productive activities. There they practised farming and forestry, which provided fruit, medicinal plants, dyes, textiles, wood, palm leaves, and reeds for the construction of shelters and buildings, as well as fuel for hearths and lime production. The jungle was also home to a range of animal species used for food and other purposes. Flora and fauna also had magical and religious powers that were translated into protective deities, which the people respected and venerated.

The splendour of Preclassic, Classic, and Postclassic Maya civilization-expressed in their social and political organization, architecture, sculpture, mural painting, writing, calendar, and other artistic and intellectual achievements-was based on an economy that was sufficiently solid and stable to sustain a hierarchical complex society. During the Classic period, the Maya state coordinated a series of public works that implied large-scale corvée labour provided by communities as tribute payment. The impressive archaeological vestiges at [Uxmal](#), [Coba](#), [Izamal](#), [Tikal](#), [Palenque](#), [Calakmul](#), and other centres are the most palpable display of the feverish pace at which temples, palaces, ritual ballcourts, platforms, paved roads (sacbeob), and the like were built. They also constructed works of a productive nature, such as agricultural terraces, canals, and raised fields. These building activities required the organization of labour on vast proportions that involved experts as well as non-specialists, such as peons, stonecutters, construction workers, sculptors, and painters, all under the direction of a centralized leadership. Maya peasants had to provide not only subsistence for their families but were also responsible for making tribute payments in agricultural products and labour to support the governmental apparatus.

Maya settlements are one of the clearest manifestations of the relationship between society and nature. They culturally shaped the natural geography through distinctive material expressions on the land. In the northern lowlands evidence of Maya settlements has been found from the Middle Preclassic to the Late Postclassic. Despite the apparent homogeneity of the northern plain of Yucatan, it possesses ecological and physiographic diversity that gave rise to geographic-cultural regions with specific environmental features. These differences were hardly unnoticed by the Mayas

and they shaped their vision and perception of nature.

THE PUUC REGION

The northern limit and this region are composed of the low hills rising less than 100 meters that gave the region its name, which means "hill" in Maya. The Puuc stretches from the town of Maxcanu and continues northeast southeast to Tzucacab. From there it extends to the southern and western limit, forming a geological escarpment that goes to the town of Dzitbakhe (Wilson 1980: 19). In this zone, which marks the start of the Bolonchen district, there are a series of hills, typical examples of Kegelkarst formations or domes known in Yucatec Maya as uitz, which reach up to 300 meters in height (Isphording 1975: 255). Soils in this region are the deepest and most fertile in northern Yucatan.

One of the factors of adversity that the ancient Maya community in this zone faced was the lack of cenotes (water-filled sinkholes) and natural water sources on the land's surface, because the water table reached depths of 42 to 135 meters (Wilson 1980: 17) and the technological development at that time precluded the excavation of wells of significant depth. Grottoes or caverns were one of the few natural sources of water storage and the precious liquid was found at such depths that its extraction was difficult. Nevertheless, the inhabitants of areas where water resources were found far underground devised ingenious ways to extract it, such as those reported in the mid-nineteenth century by explorer John Lloyd Stephens in some of the grottoes that he visited at Xcoch, Chae, and Bolonchen (Xtacumbilxunan) (Stephens 1843, 2: 155-156).

The sacred or ritual mountain was a particularly important symbol in the Maya highlands and despite the lack of major mountain chains in the lowlands, there were numerous caverns and low elevations in the hills of the Puuc region that were also regarded as sacred. Known as uitz (or huitz) in Yucatec Maya, these hills or mountains, together with the caverns or caves within them, were conceived as the dwelling place of the rain god and they were seen as portals or entryways to the home of the gods of the underworld (Bassie-Sweet 1991).

This notion is expressed extensively at Maya settlements in the Puuc region, where monumental complexes are associated with water sources, known as aguadas or akaiches, where the Mayas collected rainwater that could be filtered and used in the dry season; these depressions were conceptually related to the earthly realm and the underworld and can be seen at various sites in the region, such as Oxkintok, [Uxmal](#), [Kabah](#), [Sayil](#), and [Labna](#). We should bear in mind that the construction of temples, palaces, ball courts, and so forth, required massive volumes of water and aguadas were an alternative water source. Constructions known as chultunes or cisterns were underground hydraulic works to catch rainwater that were also common in the region.

One of the preeminent sites, [Uxmal](#) was occupied from the Upper Formative or Late Preclassic (150 BC-AD 300) to the Terminal Classic (AD 900-1000). In the Late Classic (AD 600-900), it became a political entity that lorded over the entire Puuc region. Both the construction of major infrastructure and the domestic needs of the community required enormous volumes of water, which was obtained from a system of aguadas located near the centre of [Uxmal](#), as well as from chultunes built throughout the area.

[Uxmal](#) exhibits a concentrated settlement pattern, characterized by closed quadrangles and depictions of Chaac, the rain deity, and Venus. During the Terminal Classic, the cosmogonic and sculptural symbolism of this Maya city was enriched by representations of Kukulcan, the feathered serpent, and Tlaloc, the Central Mexican rain deity, which gave rise to a water and fertility cult that was expressed in art and architecture. A number of the buildings at [Uxmal](#), such as the Palace of the Governor and the Dovecotes, were constructed to take into account archaeo-astronomical

phenomena linked to the solstices and equinoxes, which underscores the relationship between architecture and the observation of the stars.

THE COASTAL STRIP ON THE NORTH COAST OF YUCATAN

This zone extends along the north coast of the Yucatan Peninsula forming a narrow strip, which at its broadest point in the west is still less than 15 kilometres wide. Forming a zone of floodplains, it is filled with mangrove swamps.

Although the potential for farming in this zone is non-existent, in pre-Hispanic times salt exploitation was one of the leading economic activities and one of the foremost products traded with other regions throughout Maya and Mesoamerican exchange networks. As a consequence, the exploitation of salt mines by Maya political centres in Yucatan was of particular importance, because it was the basis for economic and political control.

[Xcambo](#) and Isla Cerritos are among the major Maya sites in this region that served as ports of trade in different periods. Occupation at [Xcambo](#) began in the Late Preclassic (100 BC-AD 250) and its peak can be dated to the Early Classic (AD 300-600). At this time it was a dependency of a larger city, probably Dzibikhaltun.

By the Middle Classic, [Xcambo](#) was the centre of activity aimed at supplying coastal settlements from Celestun to Laguna de Terminos, it was also linked to sites on the east coast, especially [Coba](#) and Cozumel, as well as inland with the Peten. A range of polychrome pottery, including Fine Orange ware and Jaina style figurines, was found at these sites, which were distribution hubs. However, as political fortunes changed, by the end of the Late Classic and Early Postclassic periods, [Xcambo](#) remained virtually abandoned.

Another active port of trade, Isla Cerritos, flourished during the Terminal Classic when it was a dependency of the Maya city of [Chichen Itza](#). Archaeologists recovered materials from the latter that indicate that a number of the trade wares reached the capital through this port (Andrews et al. 1988).

NORTHWEST YUCATAN

This area occupied the northwest portion of the Yucatan Peninsula, adjacent to the lowland flood plains mentioned above. Rocky soil, known in Yucatec Maya as tzekel, predominated and the shallow water table gave rise to open-air cenotes.

These soil conditions did not limit agricultural activities, although yield was probably less than in other parts of the peninsula. Despite these conditions, which were not particularly favourable for farming, large-scale Maya settlements arose in the region, including Chuncbucmil and Dzibilchaltun, which had an estimated population of 10,000 inhabitants at their peak in the Late Classic period. In this sense, both of these coastal sites formed part of an exchange network that permitted the development of extensive populations in areas rich in salt production.

Other major centres included Tho or Ichcaansiho, which stands on the site of Merida, today the state capital. This settlement was once an impressive political centre in northern Yucatan in the Late Classic, and later, [Mayapan](#), further south, was the last Maya capital in the Postclassic period.

THE EASTERN ZONE OF YUCATAN

Cenotes are abundant in this region, as well as rejolladas (sinkholes with soil in the bottom), known

as kop in Maya, both of which served to store rainwater. They formed ecological niches where the Maya practiced forestry techniques that enabled them to cultivate specific types of plants from the cloud forest, including important species such as cacao and sapodilla.

The pre-eminent archaeological sites in this region were [Ek' Balam](#), [Chichen Itza](#), and Yaxuna, in Yucatan, and [Coba](#) in the modern-day state of Quintana Roo. [Chichen Itza](#) was without doubt one of the most influential centres in this region. Its earliest occupation can be placed in the Late Preclassic (150 BC-AD 300) and it flourished in the Terminal Classic (AD 850-1050), (1) when it rose to become the foremost political centre in the Northern Maya Lowlands.

The Sacred Cenote at [Chichen Itza](#) served as a sanctuary and oracle in pre-Hispanic times that drew pilgrims from throughout the Maya world. People flocked to the city to cast precious objects and human sacrifices into the

(1) Given the polemic surrounding the site's chronology, here I employ the dates proposed by Andrews et al. (2003) for [Chichen Itza](#).

waters of the cenote as offerings to the gods. The main pyramid at this site, known as the Castillo or Temple of Kukulcan, is linked to the cenote via a sacbe or paved road. This spatial connection reiterates the cosmogonic association of the cave and pyramid. It also conveys the solar symbolism embedded in Maya calendars and interwoven with archaeo-astronomical phenomena, particularly in spectacular visual displays that could be witnessed at the time of equinoxes and solstices.

We should not overlook mentioning that foreign cultural impact can be seen at [Chichen Itza](#) in the form of "Mexican" or "Toltec" elements, said to have been introduced by Quetzalcoatl-Kukulcan (Feathered Serpent), the astronomer, great lord, and culture-bearer mentioned in colonial period written sources who might have come to the city before or after the Itzas or perhaps even with them (Landa 1978: 22, 23). These changes are evident in the architecture and distribution of buildings beginning with the Great Plaza, where considerable energy was invested in artificially levelling the ground for construction. At this time the Maya corbelled vault was combined with the use of columns to create spacious interiors, the Chaac mask appeared in combination with foreign deities, and representations of the feathered serpent proliferated. The style employed in these constructions is known as Maya Toltec, on the basis of architectural and iconographic similarities with the city of Tula in the Central Mexican state of Hidalgo. However, it seems to denote a syncretism of Yucatec Maya cultural elements with those of other Mesoamerican groups that might have originated in Central Mexico, Oaxaca, and the Gulf Coast of Mexico. At that time [Chichen Itza](#) interacted with various regions and the city was the precursor of a pan-Mesoamerican style embraced to varying degrees by elites in diverse areas of Mesoamerica. The fall of [Chichen Itza](#) at the start of the Early Postclassic coincided with the establishment of Maya pan, which consolidated its power during the Late Postclassic period from AD 1250 to 1450. At that time it exerted its control over the Maya provinces or *cuchcabalob* in northern Yucatan. In the sixteenth century, bishop Diego de Landa (1978) wrote that Mayapan was founded by Kukulcan, who established a *multepal* or system of joint rule led by the Cocom lineage. Later the city was destroyed in a rebellion headed by the rulers of the Xiu lineage.

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